

ORIGINAL RESEARCH

A CLINICAL STUDY ON INTESTINAL STOMAS

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ABSTRACT

Background: An intestinal stoma is a surgically created opening in the anterior abdominal wall. An ileostomy involves the exteriorisation of the ileum on the abdominal skin while colostomy involves connection of the colon to the skin of abdominal wall. Indications for stomas are intestinal obstruction due to benign or malignant disease, perforation with peritonitis, ulcerative colitis or crohn's disease, mesenteric ischemia, colonic growth, colorectal malignancies, anorectal malformations and high anal fistula. This study is aimed to study the different types of stomas, their indications, complications and measures to minimise the complications.

Methods: Hospital based prospective longitudinal study conducted on 50 individuals admitted to SVRRGG Hospital, Tirupati, who underwent intestinal stoma creation from April, 2021 to March 2022.

Results: The most common indications for stoma construction was Peritonitis(40%). The most common type of stoma constructed was ileostomy(62%) followed by colostomy (34%). 18 patients developed complications and the most common complication observed was Hernia/ Parastomal hernia 12%, Local sepsis 8%, Necrosis 8% excoriations (4%), followed by stomal retraction (4%). Average Hospital stay was 16 - 20 days.

Conclusion: The study showed stoma construction high in an old age group, mostly done as an emergency procedure compared to an elective procedure. The most common stoma constructed was loop ileostomy. There is a high incidence of peristomal complications related to that. The complications are better managed with proper preoperative planning with effective stoma care in the postoperative period.

Keywords: Stoma, Ileostomy, Colostomy, Parastomal hernia, Stomal retraction

INTRODUCTION

The word stoma is derived from the Greek, meaning 'mouth'⁽¹⁾. It is defined medically as a communication, natural or artificial, between the body cavity and the external environment⁽²⁾. The formation of intestinal stomas, mainly ileostomy and colostomy, has become an integral approach to the surgical management of several pathologies of the gastrointestinal tract – in both the emergency and elective patient. The basic underlying principle is that faecal flow is diverted away from the site of the pathology, by bringing an end or a loop of bowel, through the anterior abdominal wall.

Stomas are classified as temporary stoma or permanent stoma based on the need. The basic types of stomas derive their name from the gastrointestinal segment. For example, gastrostomy of the stomach, jejunostomy in the jejunum, ileostomy in the ileum, caecostomy the caecum and colostomy in the colon⁽³⁾.

Indications for ileostomy are intestinal obstruction due to benign or malignant disease, perforation with peritonitis, ulcerative colitis or crohn's disease and mesenteric ischemia. Indications for colostomy are colonic growth, colorectal malignancies, and peritonitis due to perforation, anorectal malformations and high anal fistula⁽⁴⁾.

After the construction of stoma, it produces multiple complications. Factors responsible for different types of complications are presentation, the timing of surgery, preoperative education, location of a stoma, ileostomy Vs. colostomy, comorbidity and quality of life. Stoma complications can be classified as early or late⁽⁵⁾. Early complications, such as cutaneous irritation or hematoma, are generally treated conservatively. However, late complications such as stoma prolapse and the parastomal hernia can be managed conservatively or surgically.⁽⁶⁾

Some of the commonly encountered complications following stoma construction are stoma prolapse, stoma stenosis, parastomal hernia, cutaneous irritation, stoma retraction, obstruction/ileus, ischemia/necrosis, fluid and electrolyte imbalance, hemorrhage / hematoma, fistula⁽⁷⁾.

MATERIALS & METHOD

A hospital based prospective longitudinal study was conducted in the Department of General Surgery, SVRRGG Hospital, Tirupati from April, 2021 to March 2022.

The eligible 50 subjects fulfilling the inclusion and exclusion criteria were selected and the indication of surgery, type of stoma, duration of hospital stay and the occurrence of complications was noted.

Inclusion Criteria

1. All patients, male and female, over the age of 12 years.
2. All emergency and elective intestinal stoma construction cases.

Exclusion Criteria

1. Patients who are under the age of 12 years.
2. Patients who are having a urinary stoma constructed.
3. Patients who are having stoma creation as a result of gynaecological diseases.
4. Patients for whom follow-up is impossible.

RESULTS

In total 50 individuals who underwent stoma construction are taken into this study.

The maximum number of patients were in the group 55-65yrs and majority are males. Average hospital stay was 18 days, (max - 38 days; min - 7 days). Majority of patients underwent emergency procedure while elective procedure is done only in 8 individuals.

Out of 50 patients, 14 patients have stoma related complications in which loop ileostomy has more difficulties than end ileostomy.

Distribution of study subjects according to elective or emergency procedure

- Out of 50 patients, 8 had a stoma constructed as an elective treatment, whereas 42 had a stoma constructed as an emergency procedure.

Table 1: Elective v/s emergency procedures

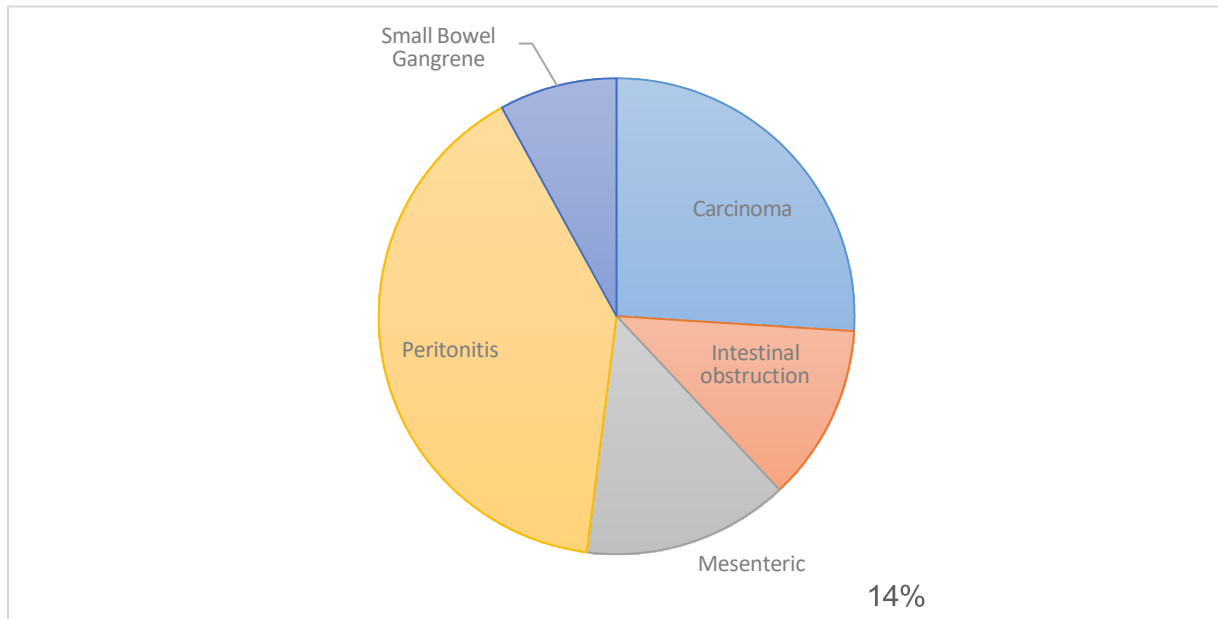
Mode	Frequency	Percentage
Elective	8	16%
Emergency	42	84%
Grand Total	30	100%

Distribution of study subjects according to the indication for stoma formation

- Peritonitis (40%) was the most common reason for stoma creation, followed by carcinoma(26%), mesenteric Ischemia(14%), intestinal obstruction(12%) and small bowel gangrene(8%).

Table 2: Indication for stoma formation

Indication	Number of Stomas	Percentage
Carcinoma	13	26%
Intestinal obstruction	6	12%
Mesenteric Ischemia	7	14%
Peritonitis	20	40%
Small Bowel Gangrene	4	8%
Grand Total	50	100%

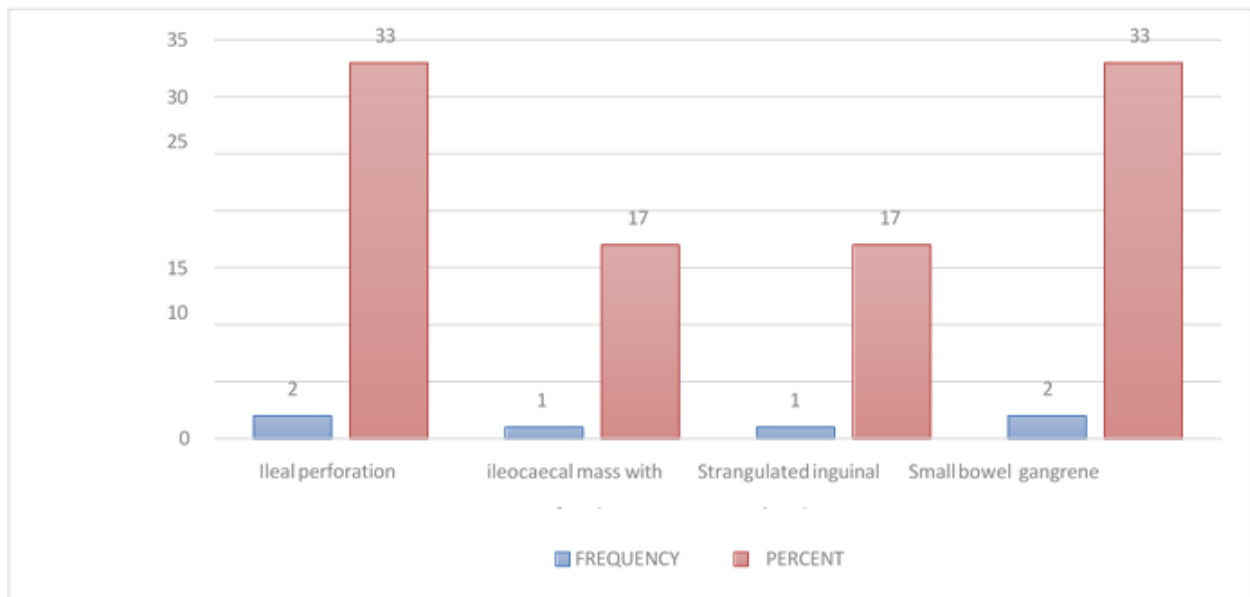


Distribution of study subjects according to the different etiology presented with peritonitis

- Out of 50 cases, 20 cases presented with peritonitis(40%), which shows different etiology which include ileal perforation(60%), Gangrenous appendix(10%), Giant perforation of ileum with fecal peritonitis(10%), rectal perforation(5%), sigmoid perforation(5%), transverse colon perforation(5%).

Table 3: Different etiology presented with peritonitis

INDICATION	FREQUENCY	PERCENT
Appendicular perforation with perforation at base of appendix	1	5
Gangrenous appendix with perforated base	2	10
Giant perforation of ileum with fecal peritonitis	2	10
Multiple ileal perforations	12	60
Rectal perforation	1	5
Sigmoid perforation	1	5
Transverse colon perforation	1	5
Grand Total	20	100



Distribution of study subjects according to the different Types of a stoma constructed

- The most prevalent form of stoma established was an ileostomy(62%) followed by colostomy(34%). The most common ileostomy was loop ileostomy(56%), followed by end ileostomy(6%). The most common colostomy was loop colostomy(20%), followed by end colostomy(14%).

Table 4: Types of a stoma that were constructed

Indication	Frequency	Percentage
End colostomy	7	14%
End ileostomy	3	6%
Loop ileostomy	28	56%
Proximal jejunostomy and end ileostomy	2	4%
Transverse loop colostomy	10	20%
Grand Total	50	100%

Distribution of study subjects according to the different complications of stoma

- In the current study, 18 of the 50 individuals suffered problems. Hernia/Parastomal hernia (12%), local sepsis (8%), and necrosis (8%), excoriations (4%), and stomal retraction (4%), were the most prevalent complications identified in stoma creation.

Table 5: Different complications of stoma

Complication	Frequency	Percentage
Hernia	2	4%
Local sepsis	4	8%
Necrosis	3	6%
Parastomal hernia	4	8%
Skin excoriation	2	4%
Stomal necrosis	1	2%
Stomal retraction	2	4%
Nil	32	64%
Grand Total	50	100.00%

Distribution of study subjects according to the Complications in elective and emergency procedures

- Complications were more when the patients underwent stoma construction under emergency circumstances (n=13 out of 18, 72%) compared to those undergoing stoma formation as an elective procedure (n=5 out of 18, 28%).

Table 6: Complications in elective and emergency procedures

Mode	Complication Count	Percentage
Elective	5	28%
Emergency	13	72%
Grand Total	18	100%

Distribution of study subjects according to the ileostomy complications

- In loop ileostomy out of 28 patients, 3 patients shows Parastomal hernia, 3 patient had local sepsis, 2 caseshows hernia, and skin excoriation, two shows stomal necrosis and.
- Out of 3 cases, in the end ileostomy 1 shows stoma-related complications 1 has parastomal hernia, 1 had stomal retraction.

Table 7: Ileostomy complications

COMPLICATION	End Ileostomy	Loop Ileostomy	Proximal Jejunostomy And EndIleostomy	GrandTotal
Hernia	0	2	0	2
Local sepsis	0	3	0	3
Parastomal hernia	1	3	0	4
Skin excoriation	0	2	0	2
Stomal necrosis	0	2	0	2
Stomal retraction	1	0	0	1
Nil	1	16	2	19

Grand Total	3	28	2	33
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Distribution of study subjects according to the colostomy complications

- In the current study, out of the 17 patients who had a colostomy 6% had local sepsis, 11.5% had necrosis, 6 % had stomal retraction and 76.5% had no complications.

Table 8: Colostomy complications

Complication	Complication	Percentage
Local sepsis	1	6
Necrosis	2	11.5
Stomal retraction	1	6
Nil	13	76.5
Grand Total	17	100

DISCUSSION

From ancient times stoma was an important life-saving procedure. Indication for stoma varies from the olden days to the current era⁽⁸⁾. Olden days, the most common indication for stoma construction was intestinal obstruction and warfare injuries.

Now indication varies from malignant conditions like colonic malignancies and colorectal malignancies⁽⁹⁾. Because the complications and associated morbidity and mortality related to stoma were high, now it is an era for primary anastomosis rather than stoma formation. However, still, stoma has a value for the prevention of anastomosis leak and diversion of faeces in inoperable cases⁽¹⁰⁾.

Fifty patients were included in this study who underwent stoma formation at SVRRGG Hospital, Tirupati from April, 2021 to March 2022. This study includes both emergency and elective stoma formation.

This study was undertaken for the following reasons.

1. For the study of various types of intestinal stomas and their indications.
2. To identify the various complications which were encountered during the construction of intestinal stomas.
3. To assess how these complications can be minimised and managed in a better way.

The complications which are observed in our study include peristomal skin changes(excoriation, dermatitis); stomal necrosis/ ischaemia, stomal retraction, high output fistula, cutaneous fistula, local sepsis and parastomal hernia.

Certain other studies also show similar results regarding the occurrence of complications following ileostomy and colostomy.

- Majority of patients presented were males (M:F - 4:1). Similar results were observed in studies conducted by Poonam et al⁽¹¹⁾ (M:F - 5:1); Syed Asad et al⁽¹²⁾(M:F - 3:1).
- Most common procedure done in our study was ileostomy followed by colostomy. Similar results were obtained in the studies conducted by Peter et al; Dulk et al⁽¹³⁾.
- Complications are more in patients who underwent ileostomy compared to colostomy. Similar results are noted by Messaries and colleagues⁽¹⁴⁾; Nastro et al; Ambe Peter et al.
- In our study hernia was the most common complication occurring in about 6 individuals(12%), followed by necrosis, stoma retraction and skin changes. The study conducted by Michael et al showed skin complications in 55% subjects and stoma retraction in 9% subjects while in the study conducted by Ahmad Z et al 36% cases developed skin

excoriations and 13% developed wound infections⁽¹⁵⁾. Average duration of hospital stay in our study was 16 to 20 days. Similar results are seen in the studies conducted by Peter et al; Dulk et al; Nastro et al⁽¹⁶⁾.

CONCLUSION

In conclusion, the study showed stoma construction high in an old age group, mostly done as an emergency procedure compared to an elective procedure and mostly done for diversion for obstruction or perforation in malignancy and perforation in traumapatients. The most common stoma constructed was loop ileostomy. There is a high incidence of peristomal complications related to that like parastomal hernia, stomal necrosis, retraction, skin excoriation. The complication is better managed with proper preoperative planning with effective stoma care in the postoperative period.

Limitations

In our study sample size was only 50, which limits the scope of research.

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